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A2 3. A method in accordance with Claim 1 wherein the transformer includes a secondary winding, said method further comprising connecting the secondary winding to the first input of the ignition module and to the ground conductor.

A3 7. (once amended) An ignition system comprising:
a burner for producing a flame;
a power supply;
an electrical system comprising a ground conductor;
an ignition module comprising a first input, a second input, and an output, said output operatively coupled to said burner, one of said inputs coupled to said ground conductor, the other of said inputs coupled to said power supply; and
an isolation transformer connected between said power supply and said ignition module.

A4 9. (once amended) An ignition system in accordance with Claim 7, said isolation transformer comprising a secondary winding, said secondary winding connected to said first input of said ignition module and connected to said ground conductor.

Remarks

The Office Action mailed April 11, 2003 has been carefully reviewed and the foregoing amendments have been made in consequence thereof. Submitted herewith is a Submission of Marked up Claims.

Claims 1, 3-7 and 9-12 are now pending in this application. Claims 1-12 stand rejected. Claims 2 and 8 have been canceled.

The rejection of Claims 1-12 under 35 U.S.C. § 103 as being unpatentable over the combined teachings of Applicant's Figure 3 as set forth in Figure 3 in view of Six et al. (US 4,519,771) is respectfully traversed.

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Applicant has admitted that Figure 3 is a schematic block diagram of a known ignition system 70 for range 10. Ignition system 70 includes a power supply 42 feeding a junction box 72, an ignition module 56, and a burner 22. Junction box 72 includes a "line" or phase conductor 74, a neutral conductor 76, and a ground conductor 78. Ignition module 56 includes first and second inputs 80, 82 and an output 84 for sending signals to an igniter 44. First input 80 of igniter module 80 is coupled to phase or line conductor 74, and second input 82 of ignition module 56 is coupled to neutral conductor 76 of the electrical system. Burner 22 is connected to electrical system ground conductor 78, and ground conductor 78 is connected to junction box 72 and tied to neutral conductor 76 extending from junction box 72. Junction box 72 receives power from power supply 42, and line or phase conductor 74 supplies power to ignition module 56 through first input 80. Ignition module 56 supplies power to igniter 44 through a conductor 86, and igniter 44 ignites fuel delivered to burner 22. Once ignited, the burner flame acts as a diode for flame detection circuitry of ignition module 56, and igniter functions as an electrode for passing current through the burner flame and across gap 54. The current passes through burner 22 to ground conductor 78, which is connected to neutral conductor 76 through junction box 76. Current flows through neutral conductor 76 to ignition module second input 82 for feedback control of igniter 44 in response to current signals received at ignition module second input 82, and igniter 44 is activated as necessary for re-ignition of the burner flame. The return path of current from burner 22 to ignition module 56 is illustrated by arrows in Figure 3. Notably, the applicant's Figure 3 does not show the use of an isolation transformer.

Six et al. describes a flame detection system that includes a burner (1) and an electrode (2) in which alternating current (AC) (4 and 5) is supplied therebetween across a burner/electrode gap. An isolation transformer (6) includes a primary winding (6a) and a secondary circuit (6b) and isolates the burner and the electrode from the AC. A control device (18) is connected to the primary winding and a semi-conductor device (19) is connected to the secondary circuit. An igniter (25) is connected to the AC and the burner/electrode gap. Notably, Six et al. does not describe the igniter connected to the isolation transformer.

Applicant respectfully submits that the Section 103 rejection of the presently pending claims is not a proper rejection. Obviousness cannot be established by merely suggesting that it would have been obvious to one of ordinary skill in the art to modify Applicant's Figure 3

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according to the teachings of Six et al. More specifically, it is respectfully submitted that a prima facie case of obviousness has not been established. As explained by the Federal Circuit, "to establish obviousness based on a combination of the elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the applicant." In re Kotzab, 54 USPQ2d 1308, 1316 (Fed. Cir. 2000). MPEP 2143.01.

Moreover, the Federal Circuit has determined that:

[I]t is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the prior art so that the claimed invention is rendered obvious. This court has previously stated that "[o]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention."

In re Fitch, 23 USPQ2d 1780, 1784 (Fed. Cir. 1992). Further, under Section 103, "it is impermissible . . . to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art." In re Wesslau, 147 USPQ 391, 393 (CCPA 1965). Rather, there must be some suggestion, outside of Applicant's disclosure, in the prior art to combine such references, and a reasonable expectation of success must be both found in the prior art, and not based on Applicant's disclosure. In re Vaack, 20 U.S.P.Q.2d 1436 (Fed. Cir. 1991). In the present case, neither a suggestion nor motivation to combine the cited art, nor any reasonable expectation of success has been shown.

Although it is asserted within the Office Action that Applicant's Figure 3 teaches the present invention except for disclosing an isolation transformer and the details of this transformer, and that Six et al. discloses an isolation transformer wherein the isolation transformer is arranged to isolate the part of the circuit comprising the burner and igniter from the AC source, no motivation or suggestion to combine the cited art has been shown. Since there is no teaching nor suggestion in the cited art for the claimed combination, the Section 103 rejection appears to be based on a hindsight reconstruction in which isolated disclosures have been picked and chosen in an attempt to deprecate the present invention. Of course, such a

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combination is impermissible, and for this reason alone, Applicant respectfully requests that the Section 103 rejection of Claims 1-12 be withdrawn.

Furthermore, Applicant respectfully submits that no motivation for the combination can be found within Applicant's Figure 3 and Six et al., as Applicant's Figure 3 and Six et al. teach away from each other. Applicant's Figure 3 describes a flame ignition system wherein the burner and the igniter portion of the circuit is joined with the AC source. In contrast, although Six et al. describes an isolation transformer wherein the isolation transformer is arranged to isolate the part of the circuit comprising the burner and igniter from the AC source, Six et al. does not describe the igniter connected to the isolation transformer.

If art "teaches away" from a claimed invention, such a teaching supports the nonobviousness of the invention. U.S. v. Adams, 148 USPQ 479 (1966); Gillette Co. v. S.C. Johnson & Son, Inc., 16 USPQ2d 1923, 1927 (Fed. Cir. 1990). In light of this standard, it is respectfully submitted that the cited art, as a whole, is not suggestive of the presently claimed invention. More specifically, Applicant respectfully submits that Six et al. teaches away from Applicant's Figure 3, and as such, there is no suggestion or motivation to combine Applicant's Figure 3 with Six et al.

Further, and to the extent understood, no combination of Applicant's Figure 3 and Six et al., describes or suggests the claimed combination, and as such, the presently pending claims are patentably distinguishable from the cited combination. Specifically, Claim 1 recites "a method for installing an ignition module for a flame burner to an electrical system, the electrical system including a junction box, a phase conductor, a neutral conductor and a ground conductor, the burner connected to the ground conductor, the ignition module including first and second inputs and at least one output, said method comprising connecting the phase conductor to the first input of the ignition module...connecting the ground conductor to the second input of the ignition module...and connecting an isolation transformer between said junction box and said ignition module."

Neither Applicant's Figure 3 nor Six et al, considered alone or in combination, describe or suggest a method for installing an ignition module for a flame burner to an electrical system, the electrical system including a phase conductor, a neutral conductor and a ground conductor,

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the burner connected to the ground conductor, the ignition module including first and second inputs and at least one output, wherein the method includes connecting the phase conductor to the first input of the ignition module, connecting the ground conductor to the second input of the ignition module, and connecting an isolation transformer between the junction box and the ignition module. Rather, Applicant's Figure 3 describes an ignition system without an isolation transformer, and Six et al. describes an igniter that is not connected to an isolation transformer. Accordingly, Applicant respectfully submits that Claim 1 is patentable over Applicant's Figure 3 in view of Six et al.

Claim 2 has been canceled. Claims 3-6 depend, either directly or indirectly, from independent Claim 1. When the recitations of Claims 3-6 are considered in combination with the recitations of Claim 1, Applicant respectfully submits that dependent Claims 3-6 are also patentable over Applicant's Figure 3 in view of Six et al.

Claim 7 recites an ignition system that includes "a burner for producing a flame...a power supply...an electrical system comprising a ground conductor...an ignition module comprising a first input, a second input, and an output, said output operatively coupled to said burner, one of said inputs coupled to said ground conductor, the other of said inputs coupled to said power supply...and an isolation transformer connected between said power supply and said ignition module."

Neither Applicant's Figure 3 nor Six et al, considered alone or in combination, describe or suggest an ignition system that includes a burner for producing a flame, a power supply, an electrical system including a ground conductor, an ignition module including a first input, a second input, and an output, wherein the output is operatively coupled to the burner, one of the inputs is coupled to the ground conductor, the other of said inputs coupled to the power supply, and an isolation transformer connected between the power supply and the ignition module. Rather, Applicant's Figure 3 describes an ignition system without an isolation transformer, and Six et al. describes an igniter that is not connected to an isolation transformer. Accordingly, Applicant respectfully submits that Claim 7 is patentable over Applicant's Figure 3 in view of Six et al.

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Claim 8 has been canceled. Claims 9 and 10 depend from independent Claim 7. When the recitations of Claims 9 and 10 are considered in combination with the recitations of Claim 7, Applicant respectfully submits that dependent Claims 9 and 10 are also patentable over Applicant's Figure 3 in view of Six et al.

Claim 11 recites "an ignition system comprising a gas burner...an AC power supply comprising a phase conductor and neutral conductor...an electrical system comprising a ground conductor...an isolation transformer comprising a primary winding and a secondary winding, said primary winding connected to said phase conductor and to said neutral conductor...and an ignition module comprising a first input, a second input, and an output, said output operatively coupled to said burner, one of said inputs coupled to said ground conductor, the other of said inputs coupled to said secondary winding."

Neither Applicant's Figure 3 nor Six et al, considered alone or in combination, describe or suggest an ignition system that includes a gas burner, an AC power supply including a phase conductor and neutral conductor, an electrical system including a ground conductor, an isolation transformer including a primary winding and a secondary winding, wherein the primary winding is connected to the phase conductor and to the neutral conductor, and an ignition module that includes a first input, a second input, and an output, wherein the output is operatively coupled to the burner, one of the inputs is coupled to the ground conductor, the other of the inputs is coupled to the secondary winding. Rather, Applicant's Figure 3 describes an ignition system without an isolation transformer, and Six et al. describes an igniter that is not connected to an isolation transformer. Accordingly, Applicant respectfully submits that Claim 11 is patentable over Applicant's Figure 3 in view of Six et al.

Claim 12 depends from independent Claim 11. When the recitations of Claim 12 are considered in combination with the recitations of Claim 11, Applicant respectfully submits that independent Claim 12 is also patentable over Applicant's Figure 3 in view of Six et al.


For the reasons set forth above, Applicant respectfully requests that the Section 103 rejections of Claims 1-7 and 9-12 be withdrawn.

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In view of the foregoing amendments and remarks, all the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

Respectfully Submitted,



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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Serial No.: 09/682,622

Examiner: Cocks, Josiah C.

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For: FLAME BURNER IGNITION
SYSTEM

SUBMISSION OF MARKED UP CLAIMS

Mail Stop: NON-FEE AMENDMENT
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GROUP 3700

Submitted herewith are marked up claims in accordance with 37 C.F.R. Section 1.211(c)(1)(ii), wherein additions are underlined and deletions are [bracketed].

IN THE CLAIMS:

Please cancel Claims 2 and 8.

1. (once amended) A method for installing an ignition module for a flame burner to an electrical system, the electrical system including a junction box, a phase conductor, a neutral conductor and a ground conductor, the burner connected to the ground conductor, the ignition module including first and second inputs and at least one output, said method comprising:

connecting the phase conductor to the first input of the ignition module; [and]

connecting the ground conductor to the second input of the ignition module; and

connecting an isolation transformer between said junction box and said ignition module.

3. A method in accordance with Claim [2]1 wherein the transformer includes a secondary winding, said method further comprising connecting the secondary winding to the first input of the ignition module and to the ground conductor.

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7. (once amended) An ignition system comprising:

a burner for producing a flame;

a power supply;

an electrical system comprising a ground conductor; [and]

an ignition module comprising a first input, a second input, and an output, said output operatively coupled to said burner, one of said inputs coupled to said ground conductor, the other of said inputs coupled to said power supply; and

an isolation transformer connected between said power supply and said ignition module.

9. (once amended) An ignition system in accordance with Claim [8], said isolation transformer comprising a secondary winding, said secondary winding connected to said first input of said ignition module and connected to said ground conductor.

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